

IN THE CLAIMS

1. (Currently Amended) A turnover apparatus for turning over articles conveyed sideways on one or more recirculating conveyor loops by frictional engagement therewith, comprising:

a series of spaced apart lugs attached along said conveyor loops and projecting above an upper surface thereof to be able to be engaged by articles being advanced on said conveyor loops;

~~a speed-up belt~~ one or more speed-up belts located ~~at adjacent to~~ adjacent to a turnover station located along said conveyor loops, said speed-up belts and positioned to frictionally engage said articles ~~carried thereto~~ on said conveyor loops and advance said articles ~~the same~~ into contact with a next ahead lug attached to said conveyor loops chain at a point thereon ahead of said article;

a series of flipper arms, ~~each~~ pivotally mounted to said each conveyor loops loop at a point adjacent a respective lug, said flipper arms each ~~configured having a~~ having a portion able to engage a leading portion of a bottom side of an article driven against a bottom part of an associated lug when said flipper arm is pivoted up;

a stationary cam ramp adjacent to each conveyor loop and located at said turnover station to be positioned to engage another portion of each flipper arm as said conveyor loops carry each flipper arm past said stationary cam ramp to successively cause each of causing said flipper arms to be successively pivoted up to engage said one portion with an adjacent ~~said~~ article to raise said article to on an edge position, ~~continued operation of said speed-up belts urging said article into abutment against said next ahead lug, said lugs each having an overhung edge engaging an~~

~~upper part of said article when driven thereagainst, a lower part of said article driven past said edge to cause tipping over of said article after said article is raised to an on edge position by said speed up belts.~~

2. (Currently Amended) The apparatus according to claim 1 wherein said lugs each have a trailing upper edge located to the rear of a said bottom part of said lug, operation of said ~~speed-up belt~~ speed-up belts driving said on edge article forward to engage said trailing edge of said lug, a lower part of said article driven past said trailing edge, tipping over said article backwards to complete said turnover.

3. (Original) The apparatus according to claim 2 wherein said lugs each have a rear facing curved shape creating said trailing edge to guide raising of said leading edge of said article.

4. (Currently Amended) The apparatus according to claim 1 wherein two spaced apart conveyor loops are included to be able to support and sideways advance of said elongated articles, ~~each loop having~~ a series of said lugs and flipper arms mounted to each conveyor loop ~~thereto~~, each lug and flipper on one conveyor aligned with a corresponding lug and flipper arm on ~~another~~ the other conveyor ~~chain~~ loop.

5. (Currently Amended) The apparatus according to claim 4 wherein two spaced apart side by side speed-up ~~speed-up~~ belts are disposed between said two chain conveyor loops.

6. (Original) The apparatus according to claim 1 wherein each of said flipper arms has a first and a second segment, each segment extending at an angle to the other segment, a free end of ~~one~~ said first segment downwardly extending ~~segment and~~ pivotally mounted on a conveyor loop by a chain link pin extending from an associated said conveyor loop.

7. (Original) The apparatus according to claim 6 wherein each flipper arm second segment extends upwardly to form a knee at the intersection of said first and second segments, said knee engaging said cam to cause pivoting of each flipper arm when moving past said cam ramp.

8. (Original) The apparatus according to claim 7 further including an arcuate guide slot formed in said second segment of each flipper arm and a guide pin extending from an associated chain link of an associated chain link conveyor loop into said guide slot.

9. (Original) The apparatus according to claim 1 wherein said cam ramp is adjustably mounted to selectively enable varying of the angle of a cam surface engaging said another portion of each flipper arm.

10. (Currently Amended) The apparatus according to claim 1 further including a series of let down elements pivotally mounted on ~~said~~ each conveyor loop, each element located adjacent a respective flipper arm, and a second cam ramp engaging each of said let down elements when advancing through said turnover station to initially ~~for initial~~ raise said let down element and

thereafter lower the same, each let down ~~turnover~~ element having a portion engaging a rear side of an article raised to an on edge position.

11. (Currently Amended) A method of turning over articles at a turnover station alongside ~~along side~~ a conveyor including one or more recirculating conveyor loops supporting and frictionally engaging said articles positioned ~~position~~ on said conveyor loops to convey the same, including ~~the steps of~~:

mounting a series of spaced apart lugs to each conveyor loop, said lugs each having a portion projecting above said conveyor loops;

loading each article into aligned spaces between successive lugs to be carried along on said conveyor loops;

pivotally mounting a flipper arm to said one or more conveyor loops adjacent each lug, each flipper arm having a portion normally positioned ~~just~~ below a rear side of each lug;

driving each article so as to be advanced on said one or more conveyor loops into abutment with a next ahead lug;

fixedly locating a cam ramp adjacent each conveyor loop at a said turnover station so as to engage a portion of each flipper arm on said flipper arms in moving into said turnover station as said articles are moved through said turnover station and past said cam ramps, said cam ~~ramp~~ ramps configured to cause an upward movement of each of said flipper ~~arm~~ arms to engage a portion thereof with a leading side of an article abutting a lug to elevate said leading side of said article thereof.

12. (Currently Amended) The method according to claim 11 further including the steps of providing a trailing upper edge on each lug spaced above an article in abutment against said lug;

raising said article to an on edge position with said flipper arm upward movement ~~motion~~; and

thereafter advancing said on edge article against said lug trailing edge by a frictional engagement of a ~~speed-up~~ speed-up drive belt with a lower edge of said article to thereafter tip over said article in a rearward direction to complete the turnover at ~~at~~ said turnover station.

13. (Currently Amended) The method according to claim 12 wherein said articles are conveyed by two or more spaced conveyor loops ~~are used to convey said articles each conveyor lug having and an~~ aligned series of lugs are mounted on each conveyor loop ~~thereto~~, and a pair of speed-up ~~drive~~ belts are interposed between said conveyor loops to drive a conveyed article into abutment with an adjacent lug therewith.

14. (Currently Amended) The method according to claim 12 further including the step of engaging an upper rear portion of each article as it is tipping over from said on edge position, and controllably restraining lowering of said upper rear portion of each article ~~thereof~~ to slow the rate of tipping over of each article ~~dropping motion thereof~~.

15. (Currently Amended) The method according to claim 14 further including pivotal mounting ~~wherein~~ a let down element ~~is pivotally mounted~~ to each of said one or more

conveyor ~~loop~~ loops, locating each let down element ~~pivotaly mounted located~~ adjacent a respective flipper arm and ~~is driven to engage~~ engaging said upper rear portion of ~~said an~~ article while driving each let down element with a second cam ramp to control descent thereof as said article tips over.

16. (Currently Amended) Apparatus for flipping over articles on a chain loop conveyor having an upper surface frictionally engaging said articles resisting thereon to convey said articles by advance of said chain loop conveyor, comprising a series of spaced apart lugs mounted to said chain loop conveyor defining intervening spaces able to receive an article to be turned over;

a series of flipper elements pivotally mounted to said chain loop conveyor to be carried therewith, each flipper element located adjacent an associated lug and pivotable to raise a first portion ~~thereof~~ of each flipper element into engagement with a leading side of an article abutting an associated lug;

a cam surface mounted at a turnover station to engage each flipper element moved past said turnover station by said chain loop conveyor, said cam surface causing and engaging the same to cause said pivoting raising motion of each flipper element thereof, said pivoting raising motion of each flipper element flipping up an ~~said~~ article up located adjacent a respective lug on said conveyor chain.

17. (Original) An apparatus according to claim 16 further including a speed-up drive engaging each article to advance the same against the next ahead lug prior to entering said turnover station.

18. (Original) An apparatus according to claim 17 wherein each lug has a trailing overhung edge to engage an upper portion of said article flipped up by said flipper element, and said speed-up drive further driving the bottom of said article while having an upper portion in engagement with said overhung edge to cause tipping over of said article.

19. (Currently Amended) An apparatus according to claim 18 further including a let down element pivotally mounted on one said side of said chain loop conveyor chain and adjacent each flipper element, a second cam having an entrance segment engaging and pivoting up said let down element in said turnover station to engage on upper portion of said article tipped over by said engagement with said trailing edge, said second cam surface having an exit segment engaging said let down element to allow a controlled descent of said article ~~thereof~~ as said article tips over to insure a slowed rate of drop to avoid damage thereto.